



Dworshak Fisheries Complex

Monthly Activity Report



December

Highlights

Dworshak

SST BY15 pre smolt -
2,324,467

SCS BY15 eggs - 2,455,500

SCS BY14 fingerlings -
1,506,740

COS BY14 fingerlings -
553,233

Kooskia

BY 14 Chinook fish on
station 660,472

BY 15 Chinook eyed
eggs/sac fry on station
782,217

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U.S. Fish & Wildlife Service, Region 1

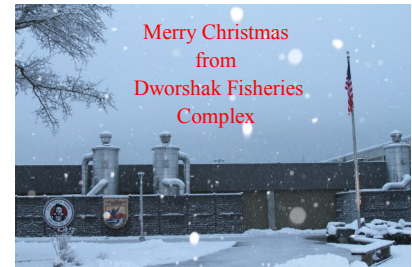
Managers Message - Steve Rogers

This month, I'd like to recognize and thank a key part of the Complex: the maintenance team. While many of you are focused on caring for the fish or monitoring their interactions and success both within and beyond the walls of the hatcheries, the maintenance employees continue to keep the facility systems and equipment running smoothly. Without their contribution, aged and complicated facilities like ours would fail.

At Dworshak NFH, we have a team of maintenance specialists that keep the operation humming along. The electricians are constantly repairing failed electrical systems and upgrading to modern technologies whenever time allows. Based on the welds I've seen, Dworshak has some very competent welders and fabricators on staff. The grounds are looking good and getting better all the time, due in large part to the efforts of one dedicated team member. He recognizes the importance of a clean, well landscaped facility in how it makes employees feel during the day; and how community members are proud of the hatchery when they come to see the fish. Hatcheries are all about plumbing, and everything from a broken toilet to a 48" line is within the scope of our in-house plumbing experts. I've been impressed over and over again at our proficiency at pulling and installing huge pumps, maintaining massive generators, boilers, chillers, you name it. Equally important, I truly appreciate the fact the bathrooms, break rooms, offices and other spaces are kept clean and cleaning supplies well-stocked. Again, a dedicated maintenance worker keeps these areas clean for everyone's benefit, with a consistent smile and strong work ethic.

All of these folks at DNFH are experienced

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Credit: Jill Olson, FWS

specialists, and they're also generalists, as they can cover for each other in most or all of diverse tasks required here. They are also team players, as I see all of them lending a hand in fish production work or wherever needed. They recognize that the fish are always the priority, and gladly help out to get the mission accomplished.

While Dworshak is staffed with a team of maintenance experts, Kooskia NFH has just one maintenance employee. He is asked to be an 'expert' at all aspects of facility maintenance: plumbing, electrical, carpentry, fabrication, etc. He too is a 'jack of all trades' and a team player. KNFH is surprisingly complicated, and he keeps a myriad of systems operating correctly with a great attitude and technical savvy.

What impresses me most about these folks is the quiet way they go about their business. They handle the preventative maintenance, scheduled maintenance, emergency maintenance and 'surprise' projects from people like me with the same calm, humble approach. They tend to work quietly in the background, but that doesn't make their accomplishments any less important.

I guess the message this month is 'thank you' to the maintenance team within the Complex. They don't seek recognition or the spotlight. However, they deserve a lot of credit for helping our hatcheries meet objectives today and in the future.



Credit: File Photo, FWS

Spring Chinook eggs from all 7 takes were enumerated.



Credit: Jill Olson, FWS

Adults have been collected for Dworshak SST early takes. Three hundred and six adults are being held in HP 1 and HP 2.



Credit: Jill Olson, FWS

Mark gave a presentation during the Climate Change Session titled, "Hot Summer Temperatures Have Unique Impacts to Dworshak Fish Hatchery".

Dworshak Hatchery Production - Izbicki, Sommer, Bisbee

Dworshak Stock - Spring Chinook Salmon (SCS)

Brood Year 2015 (BY15)

Eggs from all 7 egg takes were enumerated. 2.85 million eggs were enumerated with 2.61 million eyed eggs going into production. Enumerated eye up was 91.4%. 23 females were culled due from BKD (ELISA values 0.249 or more) and 20 females were culled for low eye up (>60% dead eggs). Fecundity was very high this year averaging 4,024 eggs per female. There were 2.46 million eyed eggs in incubation at the end of December. Eggs are being incubated on chilled water and will be ponded as swim up fry in April 2016.

Brood Year 2014 (BY14)

At the end of December there were 1,506,740 fry at 36 fpp. Mortality was 0.23%. Several ponds have developed low level bacterial infections and have been treated with salt. Pond A-11 has IHNV.

There are 10 distinctive PBT groups ponded: 6 for the density study (3 high density and 3 low density), one for general Dworshak production, one for Selway production, one for Nez Perce Tribal Hatchery (NPTH) additional Lower Snake River Comp. Program (LSRCP) production, and excess fish production. Fish are slightly smaller than previous years but are still expected to make size.

Coho Salmon (COS)

Brood Year 2015 (BY 15)

Eggs from 78 Clearwater Coho females are currently in incubation. Additional eggs were transferred from Umatilla in November to supplement the Coho program. Eggs are being incubated on a combination of chilled and secondary water. Enumeration has been ongoing through December.

Brood Year 2014 (BY 14)

At the end of December there were 553,233 fry at 32 fpp being reared in six Burrow's ponds. Mortality remains very low at 0.05%.

Dworshak Stock- Summer Steelhead (SST)

Brood Year 2016

Adults have been collected for Dworshak SST early takes. Three hundred and six adults are being held in HP 1 and HP 2. There have been 3 adult mortalities. On December 29, 80 males were injected with GNRHa and put into HP 2. Ten control fish were also put into HP 2. These fish are part of a maturation study being conducted by the IDFC. Spawning will begin January 12, 2016. There are currently no fish in the nursery. Cleaning and repairs will be on going until BY2016 SST are moved in.

(Continued page 3)

Dworshak Hatchery Production

(Continued from page 2)

Brood Year 2015 (BY 15)

At the end of December there were 2,324,467 fry in the BPs averaging 10.7 fish per pound. Mortality was 0.4%. Some Burrow's Ponds are experiencing higher than normal mortality. Three ponds have been diagnosed with very low levels of IHNV. All takes are on schedule to meet size at release. All takes are on demand feeders and are on a maintenance diet.

SUMMARY

Table 1. Total Production—Fish on Station (12/31/15).

SP	BY	Location	Number	Wt (lbs)	FPP	L in	L mm
SCS BY 15	15	Incubation/Eggs	2,455,500	n/a	n/a	n/a	n/a
SCS BY14	14	Raceways	1,506,740	41,571	36	4.5	115
COS BY14	14	Raceways	553,233	17,065	32	4.5	113
SST BY15	15	Systems	2,324,467	211,824	11	6.5	166
Total Fish/Fry on Station EOM			6,839,940	270,460			

n/a= not applicable

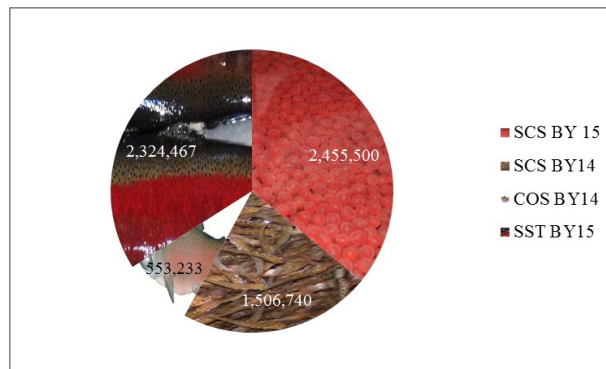


Figure 1. December 31, 2015 Total Fish/Eggs on Station.

Dworshak NFH Meetings, Training and Conferences - Drobish

On December 1-3, Steve Jeffers, Rob Bohn, Jill Olson, Angela Feldmann, Jeremy Sommer, Zach Broncheau, Mike Tuell and Mark Drobish attended the 66th Northwest Fish Culture Conference in Wilsonville, Oregon. Mark gave a presentation during the Climate Change Session titled, "Hot Summer Temperatures Have Unique Impacts to Dworshak Fish Hatchery".

On December 8th, hatchery staff participated along with co-managers via webinar to update and develop the format for reporting data in the tables for the Clearwater River Annual Operating Plan.

The hatchery Annual Work Plans aligned with the 2016-2020 Strategic Plan were submitted to the Regional Office on December 11th.

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Dworshak NFH Meetings, Training and Conferences (continued from page 3)

On December 16th, Rich Johnson, Fisheries Line Supervisor, Portland Regional Office visited the hatchery one last time before retiring on December 31st.

On December 16th, Randy Bowen, Dworshak Fisheries Complex IT Specialist was honored for his federal service during our Dworshak Fisheries Complex Christmas Pot Luck. Randy retired on December 31st and he will be missed!

Dworshak Production M&E - Peery

Worked with Dworshak NFH production staff to complete summaries of 2015 steelhead and Chinook salmon production and M&E programs for Clearwater River AOP call.

Participated in the Clearwater River Annual Operation Plan call.

Attended Fish Culture Conference.

Developed forecast for 2016 Dworshak NFH Chinook salmon return. Information was provided to IDFG to be presented to TAC next week.

Finalized proposal for FY16 flex funds in FONS for integrated project to assess harvest, escapement and spawning success for Clearwater River steelhead. Project will partner with IDFG and Nez Perce Tribe. Second FONS proposal was updated to continue providing PIT tags to mark Kooskia NFH Chinook salmon on production. Tagging this segment of production has been shared with IDFG in recent years.

Developed rankings for all FY16 proposals.

Finalized on 2016 EPAP's and IDP's for FRO staff.

Completed FY16 Work Plans associated with FWS Strategic Plan

Participated in meeting to plan marking and tagging of extra Chinook salmon production.

Participated in meeting with Hagerman NFH staff over the phone to discuss RAS evaluation.

Participated in RO project leader's call.

Edited protocols for Chinook salmon broodstock calculator.

Prepared for PIT tagging BY15 steelhead, starting next week.

Worked on installing interior of CWT trailer

Aquatic Conservation Team

M. Faler; Finalized five FONS proposals: 1 for year 2 of the Burbot Thermal Tolerance Study, and four Fish Passage proposals to address projects working with USFS.

Finalized FY16 EPAPs.

Completed the NFPP "Featured Accomplishment Report" for the IFRO to be submitted for inclusion in the Annual Regional Fishery Resources Highlights Report.

Completed Tier 1 Focus Area summaries for the ACT 5 year Business Plan.

Attended Kokanee Management Team meeting

Met with Rob Ryan (IDFG) to discuss first steps in starting the Kootenai GMU chapter for the



Credit: Jill Olson, FWS

Elevator drops fish on the sorting table.



Credit: Jill Olson, FWS

Basket of brood year 2016 adult steelhead.



Credit: Jill Olson, FWS

Working together to sort coho and steelhead.

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Aquatic Conservation Team

(continued from page 4)

Redband Rainbow Conservation Strategy.

J. Brostrom; Coordinated NFPP project data entry with Mike Faler.

Finalized conclusions and edits for Yellowstone cutthroat trout status assessment.

Entered NFPP (2) and NFHAP (1 WNTI and 1 DFHP) projects into FONS

Attended the monthly Upper Salmon Basin Watershed Project Tech Team Meeting. Showed the video "Lost Fish" with some follow-up discussion about Pacific lamprey.

Attended the Salmon School Garden Committee meeting. Met with Katie Cooper, supervisor of the CPWN intern, on projects for the school garden.

Attended the Interagency Yellowstone Cutthroat Trout annual meeting in Bozeman. GMU updates were given, and there was discussion about what to incorporate in the next Conservation Agreement and Strategy.

Participated in a Freshwater Mussel Workgroup conference call. We heard updates on activities happening in the PNW regarding native mussels and many invasive species.

Coordinated with the Salmon HS CPWN intern supervisor on upcoming activities.

Wrote and submitted Tier 1 description for SE Idaho for Regional ACT Strategic Plan.

Coordinated with school intern.

Attended Pacific Lamprey Policy Meeting in Portland.

Finalized two FONS proposals for Pacific lamprey. One will be to continue support for the Pacific lamprey Conservation Initiative. The second is a research project to identify lamprey production hotspots.

Worked with University of Idaho and Cramer Fish Sciences to develop summary of Snake River adult lamprey passage evaluation for presentation at the U.S. Army Corps of Engineers Annual Review meeting in Walla Walla next week.

Attended the U.S. Army Corps of Engineers Annual AFEP Review Meeting, Walla Walla, WA. Presented results on telemetry project to evaluate passage at the four lower Snake River dams. This year's results were comparable to 2014, showing an exponential decline in passage success as lamprey progress upstream through the Snake River hydro system.

Snake River Fall Chinook Team

B. Connor spent two days addressing technical difficulties with his computer this week. Randy Bowen reimaged the computer in a single day. Had it not been for Randy and on site assistance, more work time would have been lost.

Analyzed mark-recapture data collected on hatchery fall Chinook salmon that were PIT-tagged during 1995–2014.

Field staff continued deepwater redd searches in cooperation with Idaho Power Company and the USGS, and assisted the Nez Perce Tribe during radio-telemetry work on returning adults.

Putting together scientific collection permits that must be submitted to the states of Idaho, Oregon, and Washington in the near future.

Field staff completed deepwater redd searches in cooperation with Idaho Power Company and the USGS.

Finished the first draft of the Introduction, Methods, and Results of a manuscript focused on testing two models for estimating annual total redd counts with data collected with a drone. The draft material was forwarded to cooperators from the Idaho Power Company and University of Idaho.

Continued work estimates of juvenile fall Chinook salmon abundance at Lower Granite Dam.

Minor assistance was also provided to the Nez Perce Tribe. Sorted and stored field equipment

Idaho Fish Health Center - Blair**December 2015****Dworshak NFH**

Credit: Ill Olson, FWS

Fish were examined for bacterial, parasitic and viral pathogens.

Steelhead juveniles: Fish in system 1 were reported to “not be feeding”. They were evaluated for bacterial, parasitic and viral pathogens. Two small yellow pigmented colonies grew on TYES, but were negative for *Flavobacterium psychrophilum* (Coldwater Disease) by PCR. Kidney imprints showed activated macrophages, light bacteria, and had necrobiotic bodies, indicating they were suspect for IHNV. Light levels of *Sanguinicola* and *Epitheliocystis* were observed in gills and mucus, respectively. Virology results are still pending.

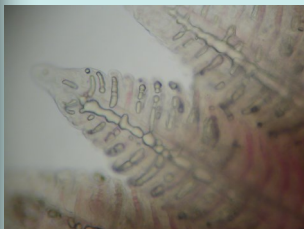
On a side note, a feed evaluation report indicated that the current lot of Rangen feed was ~ 2 % lower on protein, than recommended. In addition, peroxides were low, and free fatty acids were high. Please see table 1 for rancidity results:

Table 1. Peroxides and free fatty acid results

Feed	Peroxides	Free Fatty Acids
Rangen Steelhead	2.2	7.2
	3-10 meq/kg oil (fresh)	~3% (fresh)

Steelhead adults: 80 males were each injected with 75ug of Ovaplant to help speed maturation of the early take fish under the INAD. 10 controls were also placed in the same pond. Fish will be evaluated for volume of milt and % motility at time of spawning in January.

Spring Chinook juveniles: Increased mortality was reported in A and B bank. Fish were examined for bacterial, parasitic and viral pathogens. No bacterial or parasitic pathogens detected, virology is still pending. Gills did have excessive mucus and debris. One fish in B bank had fungal necrosis on ventral side of caudal fin. One moribund fish had gas bubble trauma in gills. Recommendations were to improve water quality.



Credit: Idaho FHC, FWS

One moribund fish had gas bubble trauma in gills.

Coho juveniles: Monthly monitoring was conducted 31 December 2015. Mortality was low at the time of exam. Parasites suspected to be Loma were found on the gills of six out of ten fish. No internal identification of Loma could be made in kidney, spleen and liver squashes from two fish. Heart, liver, kidney, spleen and gill from the six fish found with the parasite in the gill were preserved in Davidson's and shipped to Bozeman Fish Health Center for histological confirmation. Results are expected back the second week of January. All fish had food in their stomachs and appeared normal other than 2/10 had slightly swollen kidneys.

Kooskia NFH

Spring Chinook juveniles: A monitoring exam of spring Chinook juveniles at Kooskia NFH was performed on December 14th. Low levels of the blood fluke *Sanguinicola* were seen on the gills and low levels of *Epitheliocystis* were observed on the skin. Most fish had low to no food in stomachs most likely due to the cold water conditions. All fish examined were sampled for *Renibacterium salmoninarum* (Bacterial Kidney Disease) monitoring by the ELISA test.

DNFH Maintenance and Operations Activity Report - Koehler

- We are wrapping up repairs to all standpipes for system 1,2 and 3. The standpipes are being cleaned and new fixed handles are being installed per requests from production personnel.
- Electrical is finishing up a project which greatly improves emergency power backup for the hatchery server.
- Maintenance is in the process of replacing the roof on the digester pump house. This was originally scheduled to be completed by contract through the COE, but later decided that it could be completed more efficiently in-house.
- New lighting is be installed above the egg troughs in incubation. Existing room lightning does not supply the proper lighting in this area. It will have separate control as requested by production staff.
- Construction is underway of a 20' X 20' metal structure to protect hose and equipment from the elements. It will be located between system 2 and 3. After the main structure is complete, maintenance will design and install appropriate racks and shelving.
- Starting this month old and outdated interpretive signage at the hatchery will be removed in preparation of new signage.
- Maintenance has devised a plan to install a 10 inch flange and butterfly valve on the 10 inch outflow from raceways into the point pond so that wastewater can be diverted back to the system 2 and 3 clarifiers. per requests from production.
- All the valves that operate water flow for the egg troughs in incubation is being replaced. This will require all piping be replaced a the same time.
- We are working with the COE electrical engineers to come up with solution for repairing the conductors for a 1000 amp service that shorted out mid month. The electrical department was able to re-route power and keep us operating at full capacity, but a long term solution is needed.
- Its that time of the year and we have spent several days this month dealing with snow and ice. More to come I'm sure.
- There's been 34 Preventative work orders issued for the month of December. 26 of them have been completed and we have 8 electrical PMs that had to be scheduled for the first week in January. HECP safety protocol has been implemented and work on those 8 electrical PMs has begun. 33 staff requested work orders have been completed this month with another 23 outstanding work orders waiting to be started.

That's it for December and for 2015, See ya next year.

Kooskia NFH - Hills

This activity report is implemented by the Tribal Fish Hatchery Manager, Kent Hills. All information in this report was collected and or performed by the hatchery staff during the preceding month.

Under SRBA and the Clearwater Annual Operating Plan, the Tribe, Service and Idaho Fish & Game have agreed to implement other fish production actions related to KNFH mitigation. Reports will include additional information about other species reared, processed and released in relation to KNFH operations.

Kooskia Chinook Brood Year 2014

There are 660,472 fish on station, they are an average of 35.4 fish per pound and are 4.5 inches (116 mm). All fish are in the Burrows ponds on creek water at an average temperature of 33 degrees. Total mortality for the month was 113. The fish consumed 497 pounds of Bio-Vita feed. Fish lost length and weight this month due to the cold water temperatures. Idaho Fish Health Center was out and sampled fish on Dec 17, low to no food was found in the stomach; kidney samples were taken and the results are not back at this time. Low concentrations of external parasites were found on the gills and skin (*Sanguinicola*, *Epitheliocystis*).

Kooskia Chinook Brook Year 2015

Total eggs on station the first of the month was 727,004. This number is below the brood stock table so on December 9; Dworshak transferred 103,128 Kooskia stock eyed eggs to Kooskia. This brings eyed egg numbers on station to 830,132. At the end of the month, we have 782,217 eyed eggs/sack fry on station, mortality this month was 16,822 from fungus, bad eggs, and deformities. Takes 1, 2 & 3 have hatched and are on well water with an average temperature of 38 degrees.

Kooskia Adult Trap Operations: Trap was closed all month.

Maintenance & Operations:

Dec 02: The International tractor was picked up by Bell Equipment for repair of the radiator and fuel pump.

Dec 03: Staff installed a hoist on the weir.

Dec 09: Received 103,128 Spring Chinook eggs from Dworshak Hatchery to add to Kooskia stock.

Dec 15: Staff continues to pick and clean the eggs of BY15, take 1 and 2 have hatched, take 3 is partially hatched.

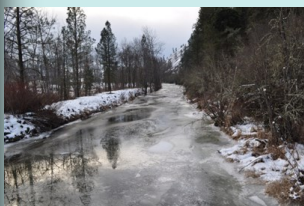
Dec 30: BY14 has had no growth this month due to cold creek water temperatures.

Dec 31: The oxygen generator arrived. It was in two large crates and was unloaded at the Kooskia Mill because we didn't have a forklift big enough to unload off the truck. We hauled it to the hatchery the next day with a trailer from research in Orofino and fork extensions from the Fall Chinook project. This



Credit: KNFH

Art picking dead eggs at
Kooskia National Fish
Hatchery



Credit: KNFH

Cold winter day on
Clear Creek!

Kooskia NFH - Hills

(Continued from page 8)

Maintenance & Operations:

will be used to replace the aeration system we presently have on station with more O2 in the bio-filter in late summer.

Kooskia NFH Training and conferences:

Art and Kent attended the Northwest Fish Culture Conference on 12/1 thru 12/3.

Staff attended a ladder safety training session on 12/07.

Dworshak Complex Production Meeting on 12/03.

AOP meeting at Dworshak on 12/08.

Dworshak Strategic Planning Meeting on 12/10.

Rich Johnson tour at Kooskia Hatchery on 12/16.

Randy Bowen's retirement party at Dworshak 12/17.



Information and Education

Dworshak - Jill Olson

Facebook: Reach - 12,633 Engagements - 1,406

Website: Page Views - 174; Unique Visits - 129; First Timers - 116; Returning Visitors - 13

Visitors: We had 39 on-site visitors coming from 3 states.

Tours: No tours given in December.

Outreach: No outreach events took place in December. A trout order was placed for Kid's Fishing Day!

Volunteer Hours: Two volunteers contributed 32.5 hours; Idaho Youth Challenge Cadets contributed 40 hours in December. The cadets graduated mid-December and a new group will return in the Spring of 2016.


Kooskia - Kent Hills

Visitors: There were 103 visitors to the hatchery during this month; this figure is compiled by staff. Visitation to the hatchery is low due to cold weather and no adult fish being trapped.

We can also be found on the web @

<http://www.fws.gov/dworshak/>



Like us on  and keep up with what is happening at the

Dworshak Fisheries Complex

<https://www.facebook.com/pages/Dworshak-Fisheries-Complex/411264238917917#>



Let's Go Outside!

Connecting People With Nature

<http://www.fws.gov/letsgooutside/>

Staff List

Dworshak Fisheries Complex Management:

Steve Rodgers, Dworshak Fisheries Complex Manager

Mark Drobish, Dworshak NFH Manager

Adam Izbicki (FWS) & Jeremy Sommer (NPT)
Dworshak NFH Assistant Hatchery Managers

Mike Tuell, SRBA Coordinator

Dr. Marilyn "Guppy" Blair, Project Leader-Idaho Fish Health Center

Scott Koehler, Dworshak NFH Maintenance Supervisor

Vacant, Project Leader, Idaho Fishery Resource Office

Mike Faler, Aquatic Conservation Lead

Dr. William Conner, Fall Chinook Research Lead

Dr. Chris Peery, Fish Production M&E Lead

Kent Hills, Kooskia NFH Manager

Gerry Fogelman, Kooskia NFH Maintenance Supervisor

Dworshak NFH Production: Angela Feldmann, Tom Tighe, Rob Bohn, Wayne Hamilton, Mike Bisbee, Tui Moliga, Lou Ann Lasswell, Steve Coomer, Carter Lopez, Casey Mitchell, Zach Broncheau, Jayden Hudson, Steve Jeffers, Jayson Thompson

Administration: Heather Leopard- Administrative Officer, Brian Devin-Budget Technician, Randy Bowen- IT Specialist

Dworshak NFH Maintenance: Terry Weeks, Rick King, Rob Kellar, James Oatman, James Paddelty, Melissa Wright, Joe Livesay

Idaho Fish Health Center: Laura Sprague, Corie Samson, Sean Roon

Idaho Fishery Resource Office: Ray Jones, Aaron Garcia, Carrie Bretz, Frank Mullins, Jody Brostrom, Ken Bugler, John Hook

Complex Information and Education: Jill Olson

Kooskia NFH: Art Broncheau, Kenny Simpson,